American Engineer

FEBRUARY 1952

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The Miracle Age of Engineering

A Pageant of Words and Pictures

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National Engineers' Week, Feb. 17-23, 1952

An
ENGINEERS' WEEK MESSAGE
from the
PRESIDENT OF THE UNITED STATES

THE WHITE HOUSE
WASHINGTON

January 12, 1952

Dear Mr. Dresser:

Your celebration of Engineers' Week is a fitting occasion for us all to offer our tribute to the engineering profession for its great practical contributions to our society.

In this hour of deep concern with the safety of the rights and liberty of the free peoples of the world, for the continuing growth of the invigorating principles of democracy, at home and over the seas, and for the protection of our cherished ways of life, it is particularly appropriate that your celebration, February 17-23, will coincide with the birthday of George Washington. Again it is our duty to fulfill the heroic tradition of service and courage engraved upon our Nation by the First President whose distinguished achievements included notable feats of engineering.

Please express to your Society and its members my good wishes and my abiding conviction that their profession will go on serving the Nation with complete devotion to the great cause of peace with liberty and honor.

Very sincerely yours,

Harry Truman

Mr. L. L. Dresser,
President,
National Society of Professional Engineers,
1121 Fifteenth Street, N. W.,
Washington 5, D. C.

Letters

Why more engineers?

Dear Editor:

Does the continuing tide of pleas for more young engineers represent an honest concern for the welfare of the country? One who remembers the reputed practice of Mid-west industries transporting hordes of laborers from the South to insure a labor surplus and low wages, wonders.

A "self-employed" engineer who employs dozens of professional engineers may understandably confuse in his own mind his welfare with the welfare of the country. Might he not even influence the thinking of engineering college staffs by his inquiries for graduates?

Obviously, an employed engineer in an executive position is concerned with keeping costs down in his department and would have much the same interests as the "self-employed" employing engineer.

We hear how difficult it is, because of quotas, to even enter a medical college in spite of the comparative attractiveness of the medical profession and the need for many more doctors to serve the country.

Let's not forget that our army of professional engineers includes a great many privates—the rank and file—and that they are rewarded in meager proportion.

(*Name omitted by request*)

Subsidy for Engineers . . .

Dear Editor:

Why doesn't Mr. R. R. Pitts of Dallas, Texas propose an engineering subsidy based on commodity or cost of living parity? It is the only way to get an adequate income for an inadequate professional engineer.

It is my experience that industry is quite willing to pay a premium for sound and competent engineering advice and that far in excess to the 1 to 10 or 20 ratio as Mr. Pitts claims Russia is paying. Maybe Mr. Pitts should be a professional, registered farmer.

WALTER W. OFFNER P.E.,
Mill Valley, Calif.

Employment Group . . .

Dear Editor:

The bigness of your December issue is overwhelming:

(1) We must agree with R. L. Sweigert, P. E. Dean G. I. T.

(2) Mr. Carl M. Gerlach's request for an article on developing a better personality is heartily approved.

(3) Mr. John R. Dunning's outline of Columbia's new program, is a fine step in the proper direction.

(4) We are all Engineers because we like our work and *hope* it will give us a nice living, and a place in the sun.

(5) The National Society of Professional Engineers here has a beautiful foundation for crystallizing their efforts, and we must realize that while all the above suggestions and offers are splendid, as a means of developing a nice longing among us all, we must face the problem (and the quicker the better), that it is the other fellow who decides who is to be the actor and who the

(*Continued on page* 5)

We asked 488 'Experts' to compare MICROTOMICs with the drawing pencils they were using..
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MORE UNIFORM!
Our 'experts' were engineers, architects, draftsmen, purchasing agents—drawing pencil buyers and users like yourself.
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459 of them—an amazing 94% of those who made the test—picked the New MICROTOMIC Drawing Pencil as "more uniform"!
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American Engineer

NATIONAL ENGINEERS' WEEK ISSUE

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FEBRUARY 1952

"It is the engineer's responsibility to take the new research discoveries as they come along and to put them to work for the benefit of man, and to find ways of doing it that industry and the people can afford."

HARRY A. WINNE,
Vice President—Engineering,
General Electric Company.

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Letters

(*Continued from page* 3)

stage hand. It is the other fellow who has the decision as to what *we will be paid for the work we do.*

Our policy now is to do everything we tackle to the best of our ability, in the hopes that ability will count. But we must find some way in which the achievements of engineers in the past are handed down to engineers of today, in a public manner. Columbia's Center proposes this and much more to their students, but what a grand thing it would be if the professional engineers as a group could unqualifiedly be assigned the responsibility of finding and approving the position of all who graduate from Columbia. . . . Really the time is *now* to approach Columbia, set up our committee on employment, and as soon as this all is seen to be beneficial, the Society can tackle the next step, Private Competition.

P. D. SHEPPERD, P.E.,
Denver, Colo.

Personality Article . . .

Dear Editor:

I would like to express my appreciation and to compliment you on your article entitled "How Important is Personality to the Professional Engineer?" I read this article with a great deal of pleasure and have taken from it several points which I expect to use in future talks.

It has been my privilege during the past few months to make a number of talks in Texas on the unification of the engineering profession, and one of the items which I have stressed is the personality of the engineering profession. The engineering profession has made a wonderful record of accomplishment, but as a group there is very little personality. This can be developed only by registration of all qualified engineers, reorganization by unification and responsible participation in civic matters.

This brings me to a point I would like to make and that is, that as a professional group, our contemporaries, the public, do not recognize the engineer because of the lack of personality of the profession. The technological accomplishments of engineering are many but that in itself is not sufficient for recognition.

It is hoped that the AMERICAN ENGINEER will pursue this matter further and if a few of us could make comments about this article and future articles, it may be read and may do a lot of good.

J. NEILS THOMPSON,
Second Vice President,
Texas SPE,
Austin, Texas.

► **Mr. Heller, author of the story referred to above, hopes to write further personality pieces.—*Editor.***

Pride in Engineering . . .

Dear Editor:

I would like to call your attention to the following inspirational letter recently sent to me by Mr. P. N. Wilson, P. E., of the Board of Transportation of the City of New York, New York City Transit System:

"Dear Mr. Lake:

"My membership in the National Society of Professional Engineers is a constant source of pride and satisfaction. With all due and fully considered respect for other professions, I believe that the engineers of the United States have, by their magnificent efforts, saved

(*Continued on page* 32)

Yes, Lockheed in California can train you – at full pay!

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Mr. M. V. Mattson, Employment Mgr.
Dept. AE-2

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AN ENGINEERS' WEEK PAGEANT

1927-1952

Miracle age of engineering

How Dependent Has Man Become Upon The Engineering Profession In The Short Space of Twenty-five Years? Even Engineers Will Be Surprised At The Accomplishments They Have Attained

IN commemoration of National Engineers' Week, February 17-23, *The* AMERICAN ENGINEER is attempting to trace, in as vivid and interesting a manner as possible, the myriad ways in which engineering has contributed to human progress in the last quarter century.

In doing research for this project, even this professional magazine was surprised at the way in which engineering is involved with just about everything man does. His food, clothing, shelter, health—even his recreation are provided by products of an engineering age.

Obviously, a reportorial undertaking such as this must necessarily be fragmentary and incomplete. Space and readability does not permit a detailed recital of all the things engineers have done for mankind in the era since 1927. What we have tried to do in the pages that follow is paint a broad picture of some of the more colorful things engineering does for man and let the imagination of the reader fill in the details.

It is interesting to note that 1927 was the year the Model T Ford was finally abandoned, was a year before the first home television receiver was built, and that man's knowledge of drugs and medicines was literally ages behind our present state of knowledge. Yet the twenties are, to put it tritely, only yesterday. Doubtless a quarter century from now people will look back and cluck sympathetically over the quaint, old-fashioned way things were done in 1952.

But now, let's look at the pageant just past . . .

Foreign engineers view modern canning processes under Point Four program.

food and clothing

MAN'S food and clothing comes to him mostly engineered. Twenty-five years ago, much of the food which finds its way to our tables today was unknown or unavailable. Take, for example, that delightful dish of frozen strawberries you enjoyed last night while the winds howled and there was snow on the ground.

The frozen food industry is just one of the contributions the professional engineer has made in the last quarter century to man's ancient problem, how to obtain food and clothing. In addition to frozen foods, frozen meats and new methods of canning foods, new methods of food distribution, including new-style refrigerated railway cars, have opened vistas to man's gastronomical activities. Even that gleaming new supermarket has borrowed heavily on engineering time and motion studies and design, in bringing about a new era in grocery stores.

Agricultural engineering has been developed enormously in the last two decades.

Engineers have even changed the face of nature over much of the arid parts of our country in the last 25 years, to turn deserts into garden spots providing man's food.

The Interior Department recently announced that irrigated lands broke all records for food production. More than 16 million tons of food and forage were harvested from such arid lands in 1950, the last year for which figures are available.

The Secretary of the Interior, Oscar Chapman, in dedicating the huge engineering project at Central Valley in California recently, which has added more than 500,000 acres of "desert" land to cultivation, stated that vast public and private engineering projects to reclaim America's arid land are necessary if we are to maintain our standard of living.

"The Bureau of the Census forecasts that we shall have a population of 190 million people by 1975," he said. "That means that if we are to continue to live as well as we do now—and, of course, we hope to live a great deal better—we shall have to increase our crop lands by about 99 million acres during the next 24 years."

Engineering developments have long played an important part in the making of man's clothing and textile engineering is now a highly developed profession.

The professional engineer has teamed up with the research scientist and American industry to produce the wonders of the plastics industry, which has arisen almost entirely within the last quarter century. Nylon and similar wonder fabrics depend heavily on engineering developments. Many of the items of clothing worn today were unknown in 1927.

It's probably a good thing for husbands that today's housewives have a "thousand engineers in their kitchen," ready to help prepare dinner, wash the clothes, refrigerate the food and do dozens of other things with all kinds of new engineered gadgets.

Engineering developments made frozen food industry possible, revolutionized America's eating habits.
Seabrook Farms Photo.

environment

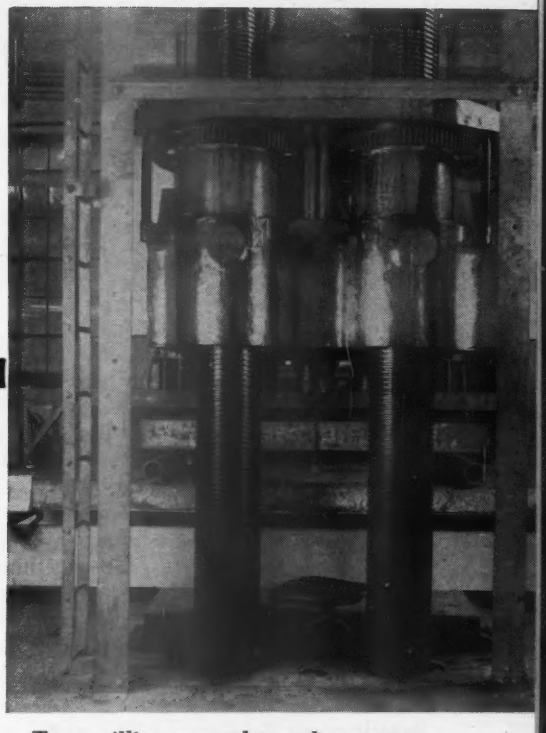
MAN lives in an engineer-made world. Dust-collecting, air-conditioning, radiant heating, refrigeration, new modes of building, all are engineering products.

In the last quarter century, engineers have taken the materials from which man's environment are composed and turned them topsy-turvey. Even that oldest material with which man works, wood, has been affected by the engineering revolution. By new processes, wood can now be stretched, twisted, literally tied in knots like a rope. New chapters in home construction have been written by the use of glued, laminated wood.

New standards of safety, comfort and efficiency have been set by the construction industry, sparked by engineering advances, since 1927. Outside the home and office, the air man breathes has been made purer and the cause of industry served at one and the same time by engineers. By the use of dust-collecting devices the smoke nuisance

Even wood, man's oldest and commonest building material, has literally been tied in knots by engineers. Glued, laminated woods, like church framework shown were designed by engineers.

National Lumber Mfrs. Assn. Photo.



Ten million pound crusher tests breaking strength of steel beam. Engineered tests like these make buildings we live and work in safe.

Bureau of Standards Photo.

can be abated, production safeguarded from contamination, and working conditions improved.

One large cement company, for example, at the suggestion of its engineering department, installed dust-collecting equipment and recovers as much as $4,000 each week in kiln dust valued at 1¢ a pound. Not only is this a boon to the company—what a boon to the community! The City of Pittsburgh has called upon expert engineering advice in a civic drive to rid itself of the blight of smoke and smog.

One tragic thought that seldom occurs to Mr. Average Man is what might happen if the building he lives or works in should suddenly collapse and pour tons of concrete and steel on top of him.

That is because engineering research and development has made building failures rare nowadays. Take the testing work of the U. S. Bureau of Standards as an example of the role engineering plays in making the environment of all men safe. To the unlearned, even Rube Goldberg, in his palmiest days, couldn't compete with the wonders professional engineers have perfected.

Bureau workmen, using the finest of materials, build and rebuild walls which a ten-million-pound crusher promptly demolishes. Building materials are refrigerated to 50% below zero, then heated to see how long it takes them to crack. A masonry wall, containing more than 2,000 specimens from 47 states and 16 foreign countries, is deliberately exposed to severe weathering so that the reactions of the different items can be tested.

So, thanks to the engineering profession's accomplishments since the days of Al Smith and Jimmy Walker, the world we live in is cleaner, safer and more comfortable.

1952 Model Car looks much different from Model T of 25 years ago. *Ford Motor Company Photos.*

Model T Ford was America's standard car a quarter century ago. It was finally abandoned in 1927.

transportation

In 1927 the Model T Ford was abandoned to give way to the new supercar, the Model A. In Germany, the world's most gigantic airplane was nearing completion.

The flying monster was an incredible 75 feet long and was designed to carry the fantastic pay-load of 13 passengers. American motorists were talking about the feats of one Canon Ball Baker who had just set a cross-country record for automobiles. To make things a little tougher for himself, the intrepid Mr. Baker had sealed his auto transmission in high gear. He crossed the country in a Model T in slightly over four days.

The memory of all this was to be dimmed by the feats of the Lone Eagle, Charles A. Lindbergh, who, in two months, was to electrify the world by flying non-stop, alone, in a one engine monoplane from New York to Paris.

Two enormous fields of transportation have grown up almost entirely in the last quarter century—the highways and the skyways. Busses, trucks, airliners, and air express have sprung up from the experimental stage to huge industries. That aerial acrobat, the helicopter, has demonstrated its versatility by rescuing stranded men from positions impossible to reach in any other manner.

Developments in transportation have come so fast that it is almost impossible to tell the transportation engineering story in a short space. Yet, of the thousands of inventions which have taken man into a supersonic era of movement, certainly the revolution in fuels is basic and must deserve mention.

High octane gasoline is the magical key which opened the door to the high-level performance of autos and airplanes which we accept as commonplace today. Improved cracking methods and the discovery that the addition of tetra-ethyl lead would stop engine knocking and give better performance paved the way to the development of better motors to utilize the increased potential of the fuel.

The railroads, backbone of the American transportation system, were literally revolutionized by diesel power. Although as long as 50 years ago, the diesel engine had proved itself the most efficient and economical prime-mover ever invented, it took the depression's spur for economy to bring the engine into its own.

When the Burlington Railroad's *Zephyr* broke all records between Chicago and Denver in 1934, with speeds in excess of 100 m.p.h., a new era in railroading was born. Increasing uses for the diesel engine have come in ships, trucks, and industrial operations.

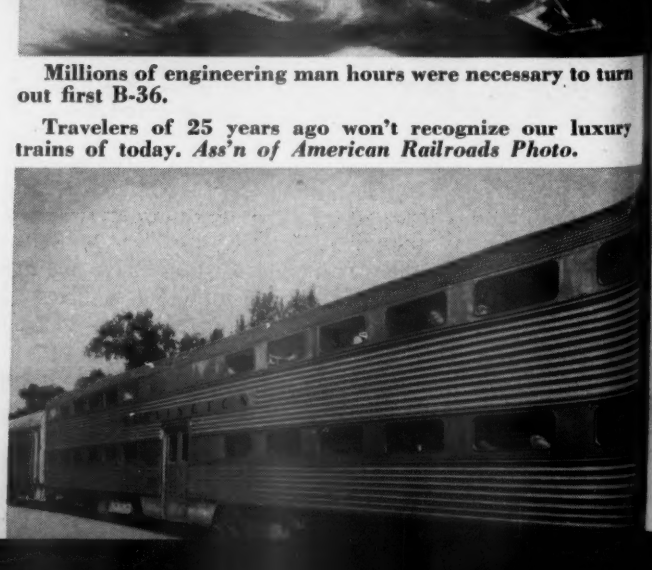
The turbosupercharger, known for many years, but not developed to the limit of its potential, was one of the heroes of World War II, and made possible a new era in aviation. With it, planes could fly higher, farther, and faster than ever before thought possible.

An engineering adaptation of the same principle is the jet airplane. The jet has the obvious advantage of speed over the propeller-driven craft. In addition to that, it is more efficient the faster it goes and needs no warn-up, obtaining full power almost immediately after the motor is started.

Rockets, guided missiles and such Buck Rogers devices seem destined to play a large part in our transportation of the future. In all of these, engineering design has played the key role. Whatever form man's future transportation may take, engineers will assume the lead in making the visions of the dreamers who invent them come true.

Millions of engineering man hours were necessary to turn out first B-36.

Travelers of 25 years ago won't recognize our luxury trains of today. *Ass'n of American Railroads Photo.*



High-Speed-Fax: world's fastest facsimile machine which sends written and printed material at rate of 3,000 words per minute.

Television owes its life to engineers. Here, demonstration of first home receiver is shown.
General Electric Company Photo.

communication

ENGINEERS have revolutionized man's means of communication during the last quarter century. The year 1927 is "only yesterday" as time is measured, yet, through effective teamwork on the part of American industry and American engineers, man has progressed eons in the field of communication of ideas and information.

One spectacular example of this advance is radio.

A quarter century ago, that miraculous new gadget was just shedding its earphones. Set owners, who had to pay about $275 for a fairly good receiver, were busily experimenting with chargers for the complex system of "A" and "B" batteries that kept their radios going. The sets could not then be plugged into a standard electrical outlet.

Today, radio is a gigantic industry, employing many thousands of persons. Engineering advances have changed it from a glorified toy into a useful tool with hundreds of practical applications as well as being a medium of entertainment.

Radio's success has been paralleled by other means of communication: the sound motion picture, improved telephone and telegraph transmission and reception, the walkie-talkie, the facsimile newspaper, color printing, multi-speed phonographs, air mail letters, modern office recording devices such as tape and wire recorders, advances in the speed of news transmission, the new radio relay systems, and numerous others.

Television and its related applications, radar, sonar, loran and the others, have had perhaps the most colorful rise in the last quarter century.

Contrary to popular belief, television was very much alive in 1927. It was, however, confined to the engineering laboratory.

A quarter century ago, work was just starting on the first home television set. A revolving disk with aseries of 48 small holes in it televised an image illuminated by brilliant incandescent lamps. The revolving disk covered the complete image 20 times a second. A picture about three inches square was projected on the receiver.

In 1929, the cathode ray tube was substituted for the revolving disk. This was the forerunner of modern picture tubes as used today.

One military application of television, radar, is credited with literally saving the life of the British Empire by no less a person than Winston Churchill. In radar, a beam sweeps a large area and any objects in its range are pictured on a screen which marks its exact position in space. These objects are often invisible to the naked eye.

Another application of ultra high frequency radio, loran, is perhaps one of the most valuable aids to navigation ever devised. The United States maintains a far-flung system of loran stations over the entire world, from the Bering Sea to the South Pacific.

AT&T's coast-to-coast radio relay system is latest communications marvel. This is a relay station at Cisco-Butte, California.

Mass-production of mold culture in making life-giving penicillin is an engineering development.
Squibb Laboratories Photo.

health

ACCORDING to figures supplied by the United States government, the average citizen has a chance of living slightly over 67.6 years today, compared with an average of 59.7 in 1927.

This gain of almost eight years can be attributed to many persons and causes: doctors, medical researchers, so-called "wonder drugs" and others—but a large share of the praise belongs to the engineer.

It has long been axiomatic that engineers carry away man's sewage, purify his water, drain his swamps, lead the fight against insect disease-carriers and take other steps to guard his health. The last two-and-a-half decades have seen new developments by engineers in contributions made to man's health.

Consider the "wonder drugs." Few persons connect the engineer with the manufacture of penicillin and other disease-killing medicines. Yet, the discoveries of the research scientist would be of no practical value to mankind without the engineer to devise means for their mass-production at a cost all could afford to pay. The engineer, it has been truly said, is the "middleman" between the scientist and the public.

For a specific example of the role engineering plays in the making of the wonder drugs, take the case of the antibiotic, chloromycetin. A top official of the Parke-Davis Company, describing the production of the drug by synthetic processes, said:

"The synthetic process was a typical organic chemical synthesis, involving eight separate reactions, and was a very complex and intricate process to translate into large scale production.

"Two months of hard concentrated effort by our pilot plant engineers, working on the chemical synthesis developed in the laboratory, resulted in a workable process which we felt could be translated with good success into a real commercial production unit. Here it should be emphasized that this involved the determination of limiting operation conditions for eight separate chemical reactions. Such things as minimum and maximum temperatures, alkalinity and acidity limits (pH), corrosion susceptibilities, working pressures, inert atmospheres, working solvents, and so forth, had to be defined for optimum operation on each of the eight steps. These studies required several innovations as well as ordinary types of application of all the unit operations of evaporation, rectification, filtration, extraction, crystallization, etc. common to current engineering practice.

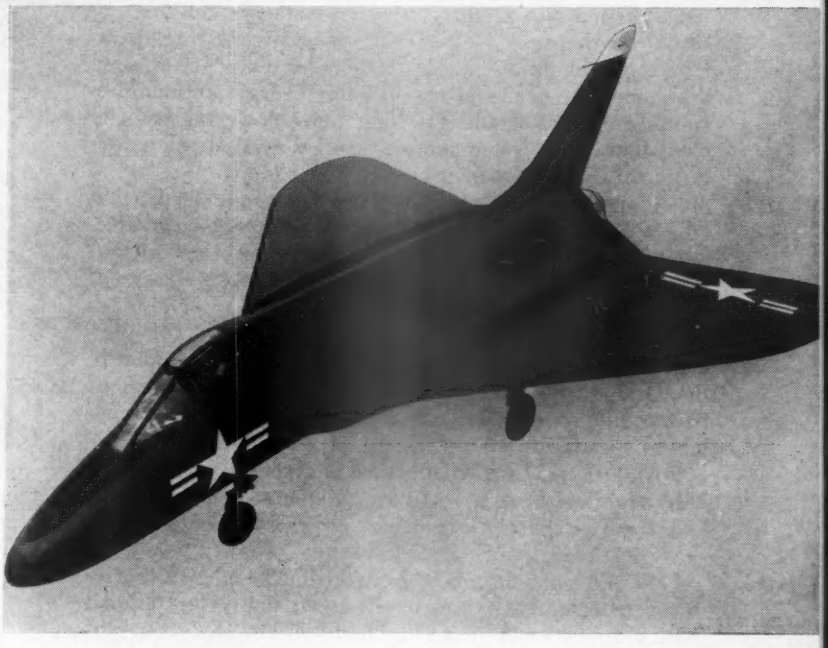
"The accomplishment of the final step of designing and equipping a large scale plant for commercial production required some six months more of engineering and construction. This involved the design and engineering of reaction vessels, distillation and rectification units, centrifuges, filters, extraction equipment, crystallizers, decanters, and similar equipment such as characterizes a modern synthetic chemical plant."

In guarding man's health, as in promoting man's welfare in almost every other field, the engineer is man's best friend.

A Sanitary Engineer gives a backwoods farmer the "word" on how to clean up his well and make the water fit to drink.
Public Health Service Photo.

◀ **One of thousands of engineering developments in defense is tough 3.5 inch rocket launcher shown in use in front lines of Korea.** ***Defense Department Photo.***

Navy's *Skyray* makes vivid contrast with planes of quarter century ago. ▶



security

THE A-bomb, the projected H-bomb, and the rocket have added new concepts to man's idea of warfare in the last quarter century. These are obviously far too vast to explore here, but the remark of General R. A. McClure, Chief of the Army's Psychological Warfare Corps, indicates what changes the guided missile, can bring in such a seemingly foreign field as psychological warfare. Discussing means of getting discouraged enemy soldiers to surrender, General McClure said:

"In this fantastic age in which we live, I think it is within the realm of possibility that we might have a guided missile, which can circle for half an hour above isolated detachments of enemy troops, dribbling leaflets, and broadcasting messages in their own language urging them to surrender."

The science of engineering first arose as an adjunct to military operations. For many centuries, ancient engineers existed solely to smooth the path for the conquerer and the defender alike. Then, in the comparatively recent past, a group of engineers, designated as "civil" engineers, were distinguished from the military.

Gradually other engineering specialties developed and disassociated themselves with military engineering but engineering's history makes it obvious that war and preparation for war has engaged much of the time of engineers since the dawn of history and before.

Unfortunately, this is still true today. To evaluate the worth of the engineer to the nation's security, all one must do is look around. Jet airplanes, guided missiles, atomic submarines—all require enormous numbers of engineers.

Defense Mobilizer Charles E. Wilson, in his recent fourth quarterly report to the President on the progress of defense mobilization, states that the first new B-47 bomber, the most colossal aircraft ever to dominate the skies, required *3,464,000 engineering man hours!* A comparison may be had with the *85,000* engineering man hours for the first B-17.

As war becomes more and more complex, it greedily consumes the talents of increasing numbers of engineers.

For a graphic example, Mr. Wilson's words tell the story of the increased complexity of modern aircraft (and necessity for engineers) best. He says:

"Today's Navy or Air Force jet fighter weighs nearly as much as the old B-17 bomber. Automatic devices—many of them electronic—to provide the pilot with greater and more accurate fire power or bombing performance, more maneuverability, day and night combat capability, and a better chance of combat success, require tons of equipment in a plane where a few hundred pounds used to be enough. Stronger construction to withstand high-speed conditions demands tougher and heavier materials; for example, the thin wing of the Lockheed F-94C fighter can support two fully loaded Super Constellations—almost 150 tons of dead weight."

A whole new galaxy of weapons, with destructive power far beyond anything dreamed of before has sprung up within the last quarter century. All of these were made possible by engineering. Whether they have added much to the sum total of mankind's happiness is a matter sociologists will debate, but they have enabled America to remain free in a technological race with the Iron Curtain we dare not lose.

man's future

IT is entirely within the realm of possibility that that modern miracle man, the professional engineer, may bring back once again that greatest of all miracles, the 40¢ a pound sirloin steak.

Fantastic? Not at all. Such an advance is definitely in sight. Furthermore, engineering promises the man of tomorrow such things as plastic plumbing, rocket trips to the moon, the practical use of solar energy, automobiles running on 100 octane gas, (far more powerful and efficient than our present motors) and a myriad other fantastic things unknown in our world of today.

Secret of the 40¢ a pound beefsteak may lie in that commonplace nuisance of the farmer—pond scum. Research scientists have discovered that certain varieties of this pond scum, mainly a kind called *Chlorella*, is one of the most nourishing substances on earth. It contains a higher percentage of protein usable by animal life than even the soybean. (Hundreds of millions of persons in the Orient who have seldom tasted meat have survived because the soybean has a high enough whole protein content to sustain life).

Furthermore, by a complicated engineering process, research by the Carnegie Institute and other scientific groups have proved that *Chlorella* can grow a whole new crop every 24 hours! 365 crops a year!

Few persons hold much thought that people can be induced to eat pond scum, but it is an unexcelled animal food. Even so eminent an authority as Dr. Dean Burk of the National Institutes of Health, whose epochal experiments have taken most of the secret out of the plant process of photosynthesis, says that all that remains to be done is to construct vast engineering projects to grow the *Chlorella*, and a cattle crop of up to ten times the present number can be supported on America's rangeland!

Furthermore, Dr. Burk says, his experiments with photosynthesis show that light, which had formerly been considered a very inefficient source of energy, is, in reality, quite efficient. He believes that in the foreseeable future, great numbers of engineering projects will be built to turn the sun's rays into usable chemical and electrical energy.

Other leading scientists have stated that rocket travel to interplanetary space is merely an engineering matter. Present rockets, they say, await only the development of sources of power great enough to break away from the earth's atmosphere.

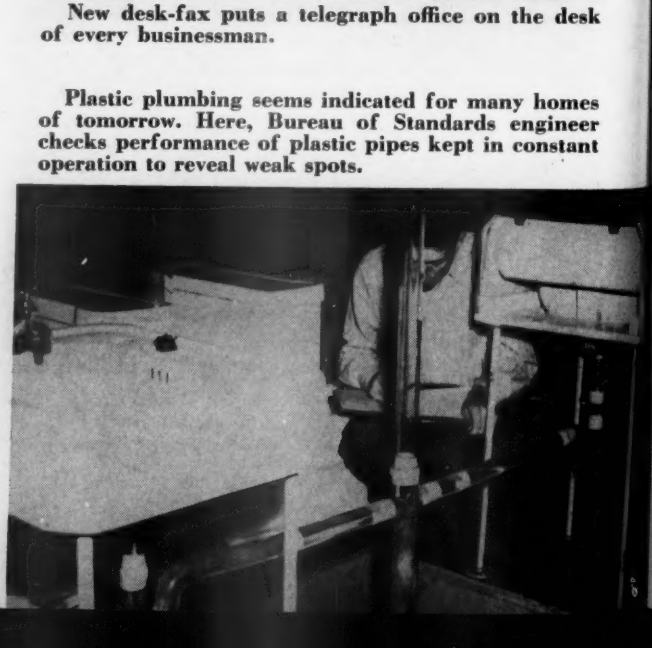
Plastic plumbing, while not so great a departure as the examples previously described, is only one of thousands of more or less mundane engineering developments which promise to make life pleasanter for us all in the future. Such pipes, of course, would be immune to freezing and corrosion. Bureau of Standards scientists are experimenting with them for several years and report that when certain engineering objections are overcome, they promise to supply the plumbing of the future.

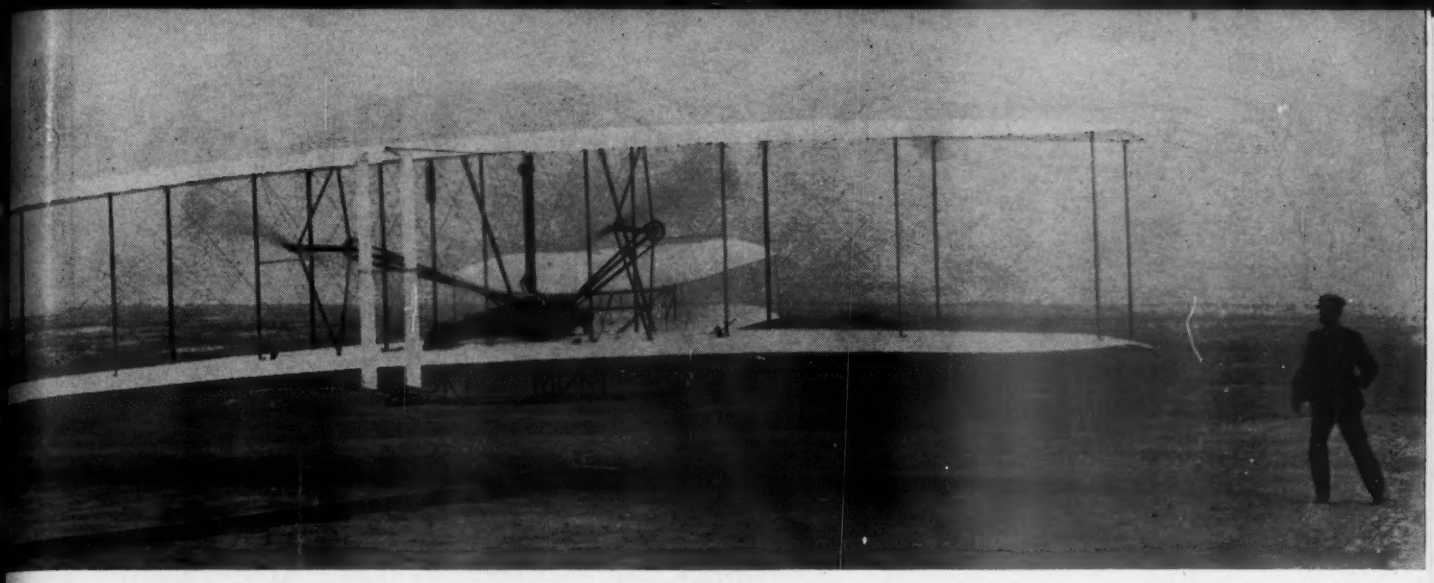
It wasn't too long ago when it seemed inconceivable that people would live in glass houses, but today millions of them do. No doubt while celebrating Engineers' Week, 1977, people shall look with pity on the old mossbacks who couldn't visualize interplanetary travel and the practical utilization of solar energy in 1952!

Sociologists will debate whether atomic bomb is good or bad, but this heavily engineered menace has enabled America to keep ahead of Iron Curtain countries in arms race we dare not lose.

New desk-fax puts a telegraph office on the desk of every businessman.

Plastic plumbing seems indicated for many homes of tomorrow. Here, Bureau of Standards engineer checks performance of plastic pipes kept in constant operation to reveal weak spots.





Historic photograph of man's first flight—the Wright Brothers plane at Kitty Hawk, N. C.

Tape of the first telegraph message: "What Hath God Wrought?"

how long ago?

Eli Whitney's cotton gin changed history of the world.

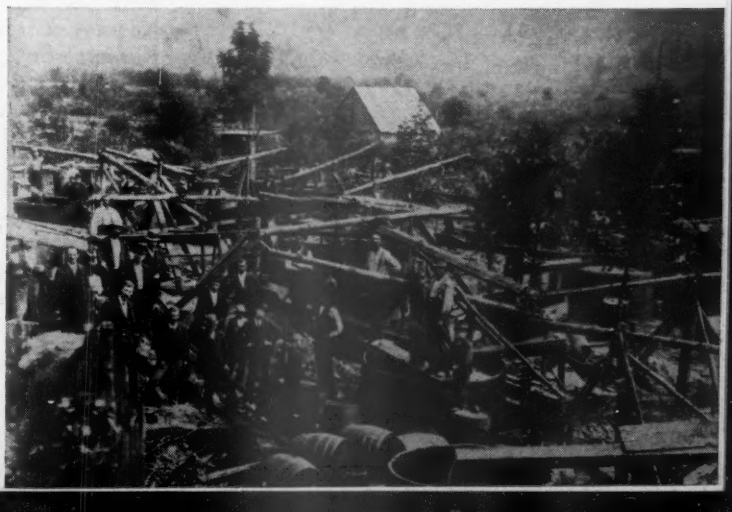
DID you recognize the photographs on this page? As famous as each event was, you probably had trouble remembering them all. Yet man's first flight or first telegraph message, took place only a short time ago as history is recorded. But what makes even momentous events fade quickly in modern man's mind, is the rapidity with which things are made to happen.

We are no sooner amazed by twenty-inch television, when luncheon table conversation has turned to the latest in color TV. We are awed by Bikini one day, only to learn the next that the big news is really the H-Bomb.

This is progress, at least materially speaking. Most of it is good, even wonderful. For the good the professional engineer can only be lauded, but by the same token he must in some measure be held responsible for the evil that his genius may be turned to.

By his outstanding work in government, in industry, and in his community, the professional engineer is today, more than ever before, recognized as a leader. This is as it should be for the direction in which his marvels will travel, can best be guided by him.—THE END.

Drake Oil Well, America's first commercial producer, near Titusville, Pa.



Nation Observes Engineers' Week

From Coast-to-Coast, NSPE's State Societies and 300 Chapters Will Sponsor Celebrations Observing February 17-23 As National Engineers' Week; At National Level Leading Industries, Networks and Newspapers Take Active Part.

FEBRUARY 17-23, 1952, will truly be the engineer's week in America from the lofty heights of Manhattan's skyscrapers, to the quiet towns everywhere that make up Main Street, U. S. A. Although this is only the second annual Engineers' Week celebration as sponsored by NSPE, the intense interest expressed by industry, government, and many other segments of the Nation's life, has shown that nearly everyone welcomes the opportunity to honor professional engineers — the men who devote their lives to improving the health, comfort, and general well-being of man.

NSPE's State Societies with nearly 300 Chapters located in most States, will, as usual, be the backbone of the celebration. These groups, using promotional materials supplied by Headquarters, have appointed wide-awake members to lead the activities in the communities. They are working to have mayors issue proclamations honoring the engineer. They have interested local radio stations in airing programs during the week that tell about the engineer and his profession. In this regard, more than sixty (see list next page) have ordered a tape recording offered by Headquarters tracing the engineering days of Washington, and will have it broadcast over a local station.

Hundreds of newspaper and magazine stories are being used by State Societies and local Chapters to further publicize Engineers' Week. Posters (see upper left hand corner of this page) are being located in plants and store windows and other places, in hundreds of towns and cities. For example, the huge Packard Motor Company in Detroit will use the posters throughout its plant to honor the hundreds of professional engineers who work for them.

Most State Societies have asked their Governors to join President Truman in proclaiming Engineers' Week, and to officially honor the men who are the foundation of our complex industrial life.

Leading Networks Cooperate

At the National level much has been done to unify the celebration of Engineer' Week, 1952. All major industrial units have been contacted with promotional literature, and leading firms have expressed a desire to cooperate. A partial list of these firms appears on these pages. These organizations were given an opportunity to request specially prepared material to be used in their own promotional work, and these aids include everything from posters to logotypes to be used in advertising.

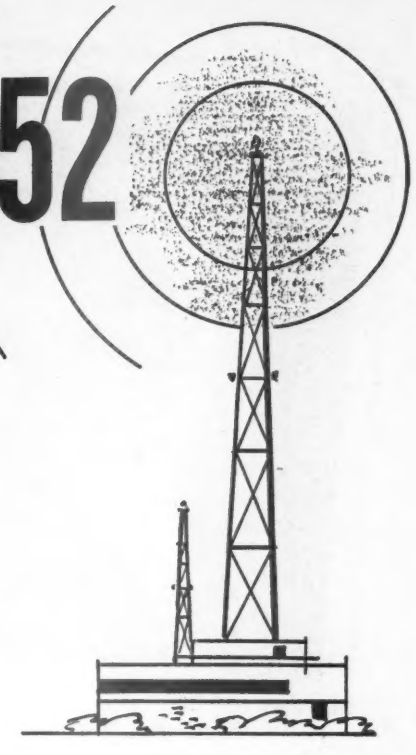
All national magazines, newspapers and radio and TV chains were asked to take part in the 1952 observance. This resulted in many promises to publicize the engineer during Engi-

Partial List of Firms Actively Cooperating with Engineers' Week Observance, 1952

(This is a national list and does not include the hundreds of firms who will undoubtedly work with many local States and Chapters)

Allegheny-Ludlum, Pittsburgh
American Bridge, Pittsburgh
American-Standard, Pittsburgh
Boeing Airplane, Seattle
Bowser, Inc., Ft. Wayne
Consolidated Vultee, San Diego
Cummins Engine, Columbus, Ind.
Driver Harris Co., Harrison, N. J.
Fairchild Airplane, Hagerstown, Md.
Fansteel Corp., N. Chicago
General Electric, Schenectady
Girdler Corp., Louisville
Grumman Aircraft, L. I., N. Y.
Harnischfeger Corp., Milwaukee
Harshaw Co., Cleveland
Holiday Magazine, Philadelphia
Katz Co., Baltimore
Kearney & Trecker, Milwaukee
Kewanee Boiler, Kewanee, Ill.
Koppers Co., Pittsburgh
Louisville Cement, Louisville
Maico Co., Minneapolis
Martin, Glenn L., Baltimore
McDonnell Aircraft, St. Louis
Military Engineer Magazine, Washington
Monsanto Chemical, St. Louis
New York Times, New York
Packard Motor Car, Detroit
Perfex Corp., Milwaukee
Philco Corp., Philadelphia
Piasecki Helicopter, Marton, Pa.
Pittsburgh Plate Glass, Pittsburgh
RCA, Camden
Republic Steel, New York
Reynolds Metals, Louisville
Shunk Co., Bucyrus, Ohio
Standard Oil, Cleveland
Tide Water Oil, San Francisco
U. S. Rubber, New York
U. S. Steel, New York
Westinghouse, Pittsburgh
Willys-Overland, Toledo

engineers' week 1952



These Chapters Will Sponsor a Special Engineers' Week Radio Show In The Cities Noted

ALABAMA
- Birmingham Chapter

ARIZONA
- Southern Chapter, Tucson
- Central Arizona Chapter, Phoenix

ARKANSAS
- Arkansas Society, Little Rock

CALIFORNIA
- Fresno Chapter

DISTRICT OF COLUMBIA
- D. C. Society, Washington

FLORIDA
- Daytona Beach Chapter
- Lakeland Chapter
- Miami Chapter
- Tampa Chapter
- Jacksonville Chapter
- West Palm Beach Chapter
- Tallahassee Chapter
- Jacksonville (Gainesville sub-Chapter) Gainesville

ILLINOIS
- Kewanee Chapter, Galesburg

KANSAS
- Wichita Chapter
- Eastern Chapter, Olathe
- Tri-Valley, Manhattan

MASSACHUSETTS
- Berkshire Chapter, Dalton
- North Shore Chapter, Lynn

MINNESOTA
- Capital Chapter, St. Paul

MISSOURI
- Western Chapter, Kansas City

NEBRASKA
- Nebraska Society, Omaha

NEW YORK STATE
- Bronx County Chapter
- Monroe County Chapter, Rochester
- Albany County Chapter, Albany
- Erie County Chapter, Buffalo

NORTH DAKOTA
- Dickinson
- Bismarck District No. Three

OHIO
- Franklin County Chapter, Columbus
- Hocking Valley, Nelsonville
- Dayton Chapter, Dayton
- Akron Chapter, Akron
- Toledo Chapter, Toledo

PENNSYLVANIA
- Johnstown Chapter, Johnstown
- Northeast Chapter, Scranton
- Washington County Chapter, Washington
- Philadelphia Chapter
- Pittsburgh Chapter
- Harrisburg Chapter

TENNESSEE
- Memphis Chapter
- Knoxville Chapter

TEXAS
- Sabine Chapter, Beaumont
- El Paso Chapter
- Abilene Chapter
- Travis Chapter
- San Jacinto, Houston

VIRGINIA
- Tidewater Chapter, Norfolk

WASHINGTON
- Seattle

WEST VIRGINIA
- Wheeling Chapter
- Appalachian, Beckley
- Charleston
- Parkersburg Chapter, Parkersburg
- Weirton Chapter, Weirton

WISCONSIN
- Southwest Chapter, Madison
- Milwaukee Chapter, Milwaukee
- Southeast Chapter, Waukesha

neers' Week, space and time permitting, and in commitments from such outstanding radio and TV shows as the popular TV dramatic hour "Studio One," sponsored by Westinghouse, and "Theatre Guild of the Air," aired by U. S. Steel.

National advertisers expressed an intent to honor the professional engineer in advertising appearing in the popular magazines and newspapers. To name only a few, American-Standard (see cut) ads will tell of the importance of engineers in *Business Week* and *U. S. News*. The huge Koppers Co., Inc. expects to have ads with a similar theme in *Time* and *Newsweek* magazines. Too, Westinghouse will devote some on its newspaper advertising to Engineers' Week, the ads to appear in several hundred papers.

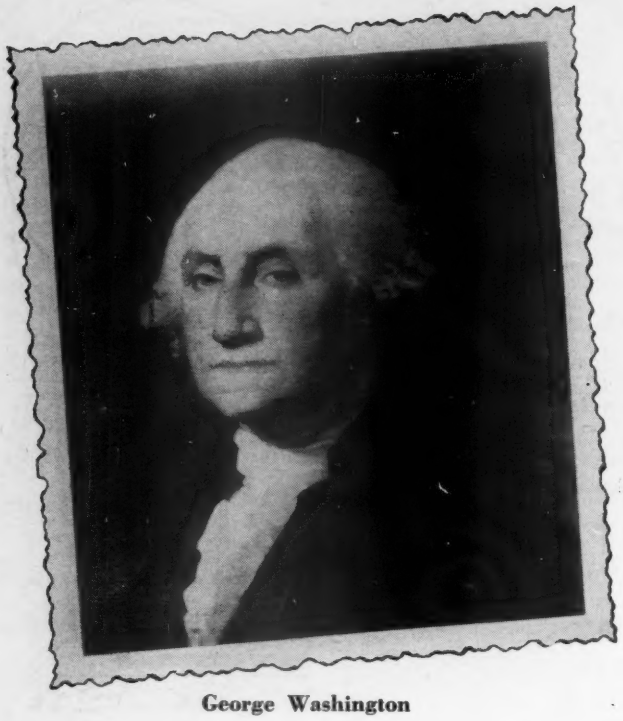
Liberty Network Show

To round out many radio and TV shows at the State and National levels, Liberty Network with its more than 200 stations, has announced that it will feature a panel discussion on modern engineering with Paul H. Robbins, Executive Director of NSPE, and others taking part. The show is scheduled for February 17 at 9:00 P.M., EST.

So, in celebrating Engineers' Week, 1952, every method of spreading the word to Mr. and Mrs. America has been used. From the smallest Chapter, who will direct and organize the Week's festivities in its area, to messages over national radio and TV networks going to millions everywhere, the professional engineer will be the Man of the Week.

Make certain that *you*, as an NSPE member, help your Chapter and State to make your local program one of which everyone will be proud.

Watch the AMERICAN ENGINEER during March and April for complete word and picture reports on Engineers' Week observances throughout the United States.



George Washington

Washington Worried About Bedsteads As Well As Battles

Our First President Was In and Out of Engineering All of His Illustrious Life. Don't Miss This Report On the Drama and Warmth That Filled The Days He Loved Most.

By

JOHN B. WALSH, P. E.,

Member, NYSSPE and NSPE

THE frontier of Virginia played a major role in the development of our country for its greatly influenced and shaped the life of Washington. Claude Bowers in his "Founders of the Republic" said, "The Frontier was Washington's preparation for the future." More particularly, it was the French and Indian wars which projected him into his later greatness. It was especially the ringing speech of John Adams for the "Hero of the Monongahela" which brought about his selection as Commander in Chief of the Continental Army.

Virginia according to its original charter extended far beyond the Alleghanies. Its western border stretched in zigzag fashion from the Ohio to the Carolina border. Included within its boundaries was the all important "Gateway to the West" at the "Forks of the Ohio," successively the site of the fort of the Ohio Company, Fort Duquesne, Fort Pitt and finally Pittsburgh. It was the rivalry for control of this essential gateway that brought on the colonial struggle between the French and the English.

Washington was not born a frontiersman, nor was he a backwoodsman, yet he came to know the "wilderness" as it was often called better even than the settlers themselves principally through his surveying and military services.

He got his first opportunity to learn the wilderness in 1748 when he was apprenticed to James Genn, Surveyor of Prince William County, on the survey for Lord Fairfax, the largest land proprietor in the Colonies, possessing more than five million acres. This survey took months to complete and carried them deep into the back country. They endured hardship and inconveniences without end as can be seen from the diary which Washington religiously kept.

In 1752 Washington applied to Gov. Dinwiddie for the post of Adjutant made vacant by the death of his half brother, Lawrence, and was appointed. With no previous military service he became Major Washington charged with drilling, disciplining and training the militia in the handling of firearms. He overcame his military deficiencies through constant attention to duty, drilling and inspection. In the next three years he had successfully completed several military tasks, such as his trip to the French Fort LeBoeuf as Dinwiddie's messenger, the engagement with the French forces at Fort Necessity in May, 1754, and in 1755 as aide to Gen. Edward Braddock when the latter, advancing toward Fort Duquesne, was surprised and routed. Braddock was mortally wounded in the engagement, the command passing to Col. Washington who made an orderly retreat to Winchester.

About this time the frontier settlers were subjected to sporadic raids by the Indians, who scalped some and carried off others. The raids became of such frequency and violence that Gov. Dinwiddie decided that the frontier should be ringed by a strong cordon of defenses, to which Washington agreed. Dinwiddie took the matter up before the British Board of Trade and received approval from London. Washington in the meantime drew up his own plan for the frontier defenses. As Dinwiddie was not a military man he left the matter up to Washington.

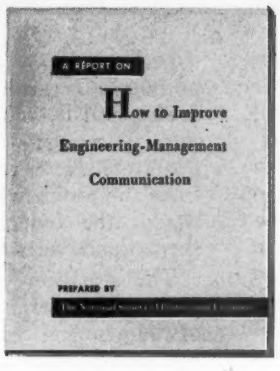
It was Washington's duty to determine the type, size and garrison of each of these frontier defenses which were to be of three types, stockades, blockhouses and forts. The plan was for Washington to start at the northern end and build south while Capt. Hog was to oversee the construction of those southern defenses beginning with the Mayo River and work north.

WASHINGTON combed the Militia for carpenters and masons to build the forts and assigned the construction to various officers, sending them detailed plans and directions as to the manner of building, as his letters attest. To Capt. Stewart he wrote "I enclose you two plans of the kind of fort that are intended to be built—with such directions that I think is impossible for you to err if you will attend thereto." To Capt. Peter Hog he wrote, "I have sent you herewith a plan of the kind of forts you are to build which you must follow exactly."

Washington had his headquarters at Winchester and he himself undertook the construction of the fort there, which he named Fort Loudoun. He marked the site of the fort and superintended the work bringing from Mount Vernon his own blacksmith to make the necessary iron work. The construction of this fort was done by his own regiment. It was rectangular, having blockhouses at the four corners

(*Continued on page* 32)

YOUR Special Public Relations Program Has Entered Its *Second Phase*—Make Certain YOU Are Part Of It



This Report on "How To Improve Engineering-Management Communication" Will Soon Be Off The Presses and Widely Distributed—It Represents The End Product of the Program's *First Phase.* (See page 26.)

But . . .

Take Part Now In The *SECOND* Questionnaire-Report Project

The Second Questionnaire on the vital subject, "The Improved Utilization of Engineering Manpower," will soon be ready to be sent to the people in industry, government, etc., *that you select.* Fill out the coupon now naming the person you want to receive the Second Questionnaire and later the Second Report that will be written from the facts gathered. Let someone know about YOU and your Society!

Thousands of NSPE Members Contributed Funds to Make This Activity Possible—It Takes Everyone To Make It Effective Now

To Join the second PR Research Project—Fill Out this coupon and mail to NSPE!

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pe or *print* on BOTH

els the name and

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om you want the

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Report sent.

NATIONAL SOCIETY
OF PROFESSIONAL ENGINEERS
1121 FIFTEENTH STREET, N.W.
WASHINGTON, D. C.

To _____

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2nd Questionnaire

NATIONAL SOCIETY
OF PROFESSIONAL ENGINEERS
1121 FIFTEENTH STREET, N.W.
WASHINGTON, D. C.

To _____

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2nd Report

HIS GREATEST SERVICE . . .

Because he spends his life working with the law, a lawyer's first duty is to the law. He is responsible for upholding and defending the law, and for promoting respect and confidence in the law. As an officer of the court, the lawyer is charged with aiding in the administration of justice and with maintaining the honor, the dignity, and the efficiency of the courts, and of promoting high standards of ethics and public service within the legal profession. Because he is best fitted for the task, the lawyer is called upon to guide and supervise in making and amending our laws.

A lawyer is also pledged to render legal services to all who need them—to help in securing and defending the rights of individuals, promptly and efficiently, and to champion a legal system and a philosophy of government under which individual rights are possible. When rendering legal services, the lawyer's first loyalty is to the cause of his client. He must stand in his place and speak for him, and use every effort within the bounds of the law, and of honor, in his client's behalf.

Above all, a lawyer finds his greatest service to his community, and his highest honor, in a deserved reputation for fidelity to private trust and to public duty, as an honest man and as a patriotic and loyal citizen.—*Published by the Atlanta Bar Association and the Lawyers Club of Atlanta, organizations dedicated to upholding the standards of integrity, education and public service of the legal profession.*

THE EASY WAY . . .

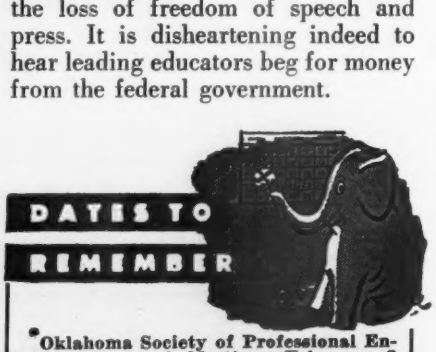
It has been proposed that "the government" subsidize the education and training of engineers and thereby wipe out the shortage. Thus the educators are to join the growing army that is living on subsistence. Nothing is said about the increased taxes that would be required to meet the bill. Presumably it is expected that a country that can send four billion dollars to foreign lands to alleviate suffering must also take care of its own man power problems. And thus the merry-go-round continues.

Ironically, the present financial difficulties that are hampering the colleges are caused by the trends to socialism, the heavy tax burden to support subsidies, and the extravagance, wastefulness and corruption in government operations. And the greater the sums of money involved, the greater the opportunities for graft and corruption and the more wasteful the nation becomes.

With taxes gobbling up personal and corporate incomes, private contributions to colleges are getting smaller and the colleges' income from their investments is also less. It is freely predicted that the privately endowed colleges are doomed. When and if they are taken over by federal government, elected and appointed federal politicians will have much influence and authority in directing our education. That will be the biggest step toward statism, second only to the loss of freedom of speech and press. It is disheartening indeed to hear leading educators beg for money from the federal government.

One solution of our college support problems is through support by industry and the individual states, the state government and personal contributions from friends and alumni. Once the problem is dumped into the lap of the federal government the shenanigans begin.

The situation with respect to the colleges is merely another example of the growing chaos that is developing in our national affairs. And the biggest contribution that the colleges can make is to do more teaching concerning the virtues of honesty, the penalties of dishonesty and the fact that there is no such thing as getting something for nothing. The easy way out, the quick solution, the fattest return in dollars is undoubtedly to get Uncle Sam to subsidize education on a vast scale. But the inevitable price in terms of academic freedom, personal dignity and squandered money as measured by taxes, is awesome to contemplate. Regrettably, he who seeks an easy way out usually does not do much contemplation. It may be too uncomfortable.—*Product Engineering, December*, 1951.



Oklahoma Society of Professional Engineers—Annual Meeting. February 8 and 9.

New York State Society of Professional Engineers—Mid-Winter Meeting. February 8 and 9. Nelson House, Poughkeepsie.

Tennessee Society of Professional Eigineers—Annual Meeting. February 18. Nashville.

Georgia Society of Professional Engineers—Annual Meeting. Feb. 19, Atlanta-Biltmore Hotel, Atlanta, Ga.

Kansas Society of Professional Engineers—Annual Meeting. February 22 and 23. Townhouse, Kansas City, Kansas.

Ohio Society of Professional Engineers—Annual Meeting. March 13, 14 and 15. Statler Hotel, Cleveland.

National Society of Professional Engineers—State Presidents' Conference. March 14 and 15. Statler Hotel, Cleveland, Ohio.

Illinois Society of Professional Engineers—Annual Meeting. April 3, 4. Pere Marquette Hotel, Peoria.

New Jersey Society of Professional Engineers—Annual Meeting. April 24, 25, 26. Essex House, Newark.

Pennsylvania Society of Professional Engineers—Annual Meeting. May 16, 17. William Penn Hotel, Pittsburgh.

Michigan Society of Professional Engineers—Annual Meeting. April 18, 19. Hotel Hayes, Jackson, Michigan.

PROFESSIONAL ORGANIZATION . . .

. . . The real professional interests of engineers would appear to fall generally into two classifications: those having to do with matters of technology, and those having to do with what we may call professional status. The dividing line, however, is not clean cut, nor need it be. For instance, proper guidance of young men entering the profession is a matter of professional status, but is associated so closely with the technical activities of both the younger and the older engineer that it probably should be classified with technical activities. On the other hand, expert testimony given by an individual engineer before a congressional committee is a technical matter, but the individual's willingness to render such service to his government without charge is a matter of professional status.

Nevertheless, there would seem to be sound practical reasons for the classification suggested. First, matters

of technology differ widely in the various branches of engineering, whereas matters of professional status are the same, or nearly the same, in all branches of engineering. Second, matters of professional status are much involved with legislation at the national, state, and local levels and, for the most part, legislation cannot be different for different branches of engineering. Also, the most effective representation of the profession on legislative matters could be expected through one organization rather than several, and through an organization having divisions that follow the usual political subdivisions, each with power to act within its subdivision rather than through an organization with divisions on some other basis and without power to act.

In considering the organization of the profession and also the recognition of the profession, which is one of the things proper organization is expected to establish, we have much to learn from experience and history.

The experience with American Engineering Council (AEC), which was organized shortly after World War I and which went out of existence about a dozen years ago, is one from which we should learn. Many able and public-spirited engineers gave unselfishly of their time and effort to AEC activities, and some good work was done for which all credit is due. The important point is that AEC was never so organized as to enable it to become the type of organization that many engineers hoped that it would. AEC was not organized to obtain and make use of the views of the engineers comprising the profession. In fact, it was not organized in a way to obtain the views of even the small number of engineers comprising the boards of managers of the major engineering societies which gave AEC its principal financial support. Primarily, for these reasons American Engineering Council has ceased to exist.

In sharp contrast with AEC we have the National Society of Professional Engineers, which has been in existence now for more than the full life span of AEC and which gives every indication of survival and expansion. Although some changes in this organization would appear essential to make it generally acceptable as the representative of the whole engineering profession in matters of professional status, some of its features which probably are responsible for its success to date are worth noting:

1. Its financial support comes directly from its individual dues-paying members.

2. It is organized on a local, state, and national basis so as to be able to deal effectively with legislation at these levels.

3. It keeps its individual members currently informed of legislation affecting the profession and of the organization's position with regard to such legislation, so that individual members have an opportunity to submit promptly their own reactions.

4. Its position on legislative matters appeals generally to its individual members. At state levels it has supported legislation restricting the practice of professional engineering to qualified persons, while at the national level it has opposed legislation which would restrict freedom of choice of its individual members in matters affecting professional status and has supported legislation which would preserve or gain such freedom of choice.

Based on these two specific experiences and on more general experience, it is probably safe to say that the success of any institution depends in large measure on its being organized properly to meet stated objectives and then confining activities to those objectives. . . .—*I. M. Stein, Fellow AIEE, Electrical Engineering, January*, 1952.

Speak Up, Engineers!

How to handle the many excellent contributions to the *American Engineer* has been a problem for several months. The comments are often too detailed for our "Letters" column, and the other types of material such as newspaper clippings, etc., would not be appropriate there, so beginning next month, this magazine will carry a NEW feature called "Professional Postscripts."

Look for it next month. You'll find dozens of short, interesting items that will appeal to you, the professional engineer. After reading the feature, will you let us have your comments about it, or better still, send us a "Professional Postscript?"

Now Available

Metal P. E. Emblems for Your Automobile License Plate Brackets

National Society of Professional Engineers
1121 Fifteenth Street N. W.
Washington 5, D. C.

Please send me at once the 3¼-inch P.E. Emblem for my car. I enclose .... check .... money order for $2.50 to cover the cost of the emblem, handling and mailing charges. Send to:

(Name) .....

(Address) .....

(City) .....(State).....

I am registered in (name of state) .....

I am ..... am not ..... a member of NSPE.

With Our Members . . .

Alabama Society Holds First Annual Meet; McRoy To Head Group

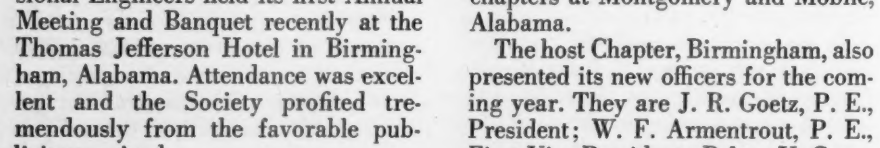
The Alabama Society of Professional Engineers held its first Annual Meeting and Banquet recently at the Thomas Jefferson Hotel in Birmingham, Alabama. Attendance was excellent and the Society profited tremendously from the favorable publicity received.

The Banquet was preceded by a Cocktail Party with members, their wives and guests participating.

At the dinner L. L. Dresser, P. E., National President, presented the Society with its Charter. After presentation of the Charter the new officers for 1952 were installed. James A. Evans, P. E., State Director from the host chapter, Birmingham, charged the new officers with the duties and responsibilities inherent with their jobs. The new officers: Wallace J. McRoy, P. E., President; Francis J. Dupuis, P. E., First Vice-President; Belton Y. Cooper, P. E., Second Vice-President; Frederick C. Siebold, P. E., Secretary; H. K. Weaver, P. E., Treasurer; and Leonard W. Peterson, P. E., National Director; accepted their charge and announced plans for formation of new chapters at Montgomery and Mobile, Alabama.

The host Chapter, Birmingham, also presented its new officers for the coming year. They are J. R. Goetz, P. E., President; W. F. Armentrout, P. E., First Vice-President; Belton Y. Cooper, P. E., Second Vice-President; John L. Harrington, P. E., Secretary; W. R. Lacefield, P. E., Treasurer; and James A. Evans, P. E., State Director.

Principal speaker for the evening was L. L. Dresser, P. E., who spoke on the subject, "Philosophy of the Engineer." In his talk Mr. Dresser advised the engineer to participate in community activities, accept the responsibilities of professionalism, and ever be on the alert against losing in a few moments by some inadvertent act the esteem and reputation built by years of hard work.



Newly elected Alabama officers. Front row, l. to r.: P.E.'s Belton Y. Cooper, Second Vice President; Wallace J. McRoy, President; and Leonard W. Peterson, National Director. Back row, l. to r.: Francis J. Dupuis, First Vice President; Frederick C. Siebold, Secretary, and H. K. Weaver, Treasurer.

Central Arizona Chapter Elects James Hastain

The Central Arizona Chapter of the Arizona SPE held election of officers for 1952 at a recent meeting.

The following men were chosen to lead the organization for the coming year.

President, James E. Hastain.

Vice President, W. T. Hamlyn.

Secretary-Treasurer, Lloyd E. Martin.

State Director, Americo Lazzari.

Trustee At Large, Reamy C. Fitch.

Former NSPE Officer Aids N.Y.C. Polio Drive As Division Chairman

Frederick H. Zurmuhlen, P. E., former vice president of NSPE, and New York City Commissioner of Public Works, has accepted the chairmanship of the Building Trades Division in the current Greater New York Campaign of the National Foundation for Infantile Paralysis, Louis H. Pink, General Chairman of the city-wide, $4,000,000 polio appeal, has announced.

Southern Nevada Chapter Meets at Las Vegas; Hears Reclamation Official

The Southern Nevada Chapter of the Nevada Society of Professional Engineers, held its monthly dinner meeting in Las Vegas at the Trophy Room of the Hotel Last Frontier, January 4.

The speaker of the evening was L. R. Douglass, Director of Power, Boulder Canyon Project, Bureau of Reclamation. Mr. Douglass told about his investigation of reclamation work in Japan at the request of American Occupation Authorities. Storage Dams and Irrigation Works in Japan predate the time of Christ, he said. This early development was necessitated by the high population density of the islands which today exceeds 500 per square mile as compared with less than 48 per square mile in the U. S.

The work in Japan extends from the benching of steep mountain slopes to the drainage of tidelands. Repair of damage resulting from storm flows, still required a high percentage of the monies set aside for reclamation work. Inability to control flood waters is in some measure the result of relatively primative construction methods.

One result of Mr. Douglass' investigation was the development of double cropping, the rice paddies are being planted with wheat during their otherwise fallow period. Mr. Douglass highlighted his talk with descriptions of travel conditions and social customs.

Phil Partridge, the Society's representative to the Clark County Civic Service Federation reported on the action taken by the Federation at its last meeting. Discussion of this report resulted in the unanimous passage of a Resolution supporting the petition of the Chamber of Commerce and the Las Vegas City Board of Commissioners, requesting the granting of Franchises to United and T.W.A. Airlines for passenger service between Las Vegas and Los Angeles by the Civil Aeronautics Board.

Mayor C. D. Baker, a Registered Professional Engineer, advised the Society that he would issue a Proclamation setting February 17 to 23 as Engineers' Week in accordance with the request of the National Society of Professional Engineers.

Engineers' Week Stories

States and Chapters are asked to get in their Engineers' Week stories to the AE as soon as possible. Special features will be used in forthcoming issues—make certain *your* group is represented.

Top Speakers, Exhibit Feature Hoosier Confab

Lichtenberg Honored At Indiana Meet; Dresser Speaks

Col. Chester A. Lichtenberg, a Vice President of NSPE, and long active in State and National engineering circles, was named Indiana's "Engineer of the Year," at the Annual Meeting of the Indiana SPE, held recently at Lafayette.

The award to the retired General Electric professional engineer for his outstanding accomplishments, climaxed a two-day business and social meeting which was highlighted by many nationally known speakers, including NSPE President L. L. Dresser from Tulsa, Okla.

F. L. Wilkinson, Jr., President, Rose Polytechnic Institute, discussed problems facing engineering educators with the Indiana group. Melvin Sudheimer, Educational Director, Electro-Motive Division, General Motors Corp., reviewed engineering problems in diesel locomotive operation, and R. C. Kasser, Head, Structural Section, Sales Development Division, Aluminum Company of America, talked on the use and application of structural aluminum.

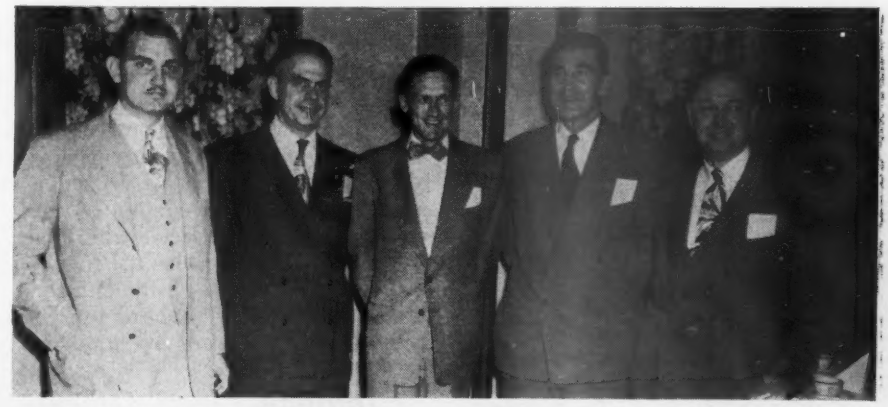
Besides President Dresser's talk on professionalism, the group also heard Prof. Walter L. Shilts, Head, Civil Engineering Dept., Notre Dame University, who is in charge of Junior Membership Awards. Standards for Engineers was the subject of a talk by T. D. Jolly, Vice President in Charge of Engineering and Purchases, Aluminum Co. of America, and President, American Standards Assoc.

The award to Col. Lichtenberg was made by Prof. C. C. Knipmeyer, Head, Electrical Engineering Dept., Rose Polytechnic Institute, at the Annual Banquet and final event of the meeting. The main address of the evening, "The Freedom We Defend," was given by Prof. Mildred Loring Fitch, Associate Professor of Political Science, Purdue University.

Of interest to the hundreds of Indiana engineers who attended the confab, were exhibits by leading industrial firms of their products and services.

NSPE President L. L. Dresser, P. E., of Tulsa, Okla., tells the Indiana engineers to "place your profession above self." The popular petroleum engineer also outlined the National Society's program for the new year.

Above, front row, l. to r.: P.E.'s E. G. Hinshaw, President; L. L. Dresser, President, NSPE; Colonel Chester A. Lichtenberg, National Vice President and recipient of "Engineer of the Year" award; L. E. Easley, National Director. Back row, l. to r.: Maurice K. Fish, Secretary; Professor Harry L. Solberg; J. B. Wilson, First Vice President; Martin L. Hapes, Treasurer; Sam Busby, Executive Secretary.



Above: Bob Hutton, President, Calumet Chapter, ISPE; C. E. Kouts, President, Southwest Chapter, ISPE; L. E. Easley, National Director; B. B. Leuns, President, Lafayette Chapter; and Maurice E. Neligh, President, Francis Vigo Chapter, ISPE.

Above, l. to r.: Charles E. Condra, President, Indiana County Surveyors Ass'n.; Harold Vanderipe, Vice President, Ft. Wayne Chapter, ISPE; J. B. Wilson, First Vice President, ISPE; C. C. Wiley of Purdue University; Bert J. Westover, Administrative Council of Indiana; and F. L. Wilkinson, Jr., President, Rose Polytechnic Institute.

New Officers Named By Wisconsin Group

Front row, l. to r.: **P.E.'s J. Maxfield, Secretary-Treasurer; Lynn Busby, President; and P. Johnson, Vice President.** *Back row:* **Prof. W. S. Cottingham, Director; W. S. Burmeister, Director, and H. W. Wirth, Director.**

Lynn Busby Named President by Southwest Chapter, Wisconsin SPE

Lynn Busby, local resident, was elected President of the Southwest Chapter of the Wisconsin Society of Professional Engineers at a recent meeting. Page Johnson and Jack Maxfield were elected Vice President and Secretary-Treasurer of the organization. The members elected to the Board of Directors were Wesley Burmeister of Middleton, Eugene Odbert, Jr. of Portage, and Harvey E. Wirth, of Madison.

Mr. Busby has been a local resident since his graduation as a civil engineer from the University of Wisconsin in 1925 and has been associated with the State Highway Department, and during World War II was with the Heavy Construction Industry and the Forest Products Laboratory in research on military metal packaging. He is Secretary-Treasurer of the Wisconsin Culvert Company and a member of Masonic Consistory 325, Nakoma Country Club, and the Madison Technical Club.

Page Johnson, Vice President, is the local representative of the Portland Cement association and Jack Maxfield, Secretary-Treasurer, is an engineer with the Madison Metropolitan Sewerage District.

Two directors, Burmeister and Wirth are associated with the State and Mr. Odberth is Director of Public Works in Portage, Wisconsin.

At the meeting, held at the Nakoma Country Club, a motion picture depicting the highway situation, "Let's Get Out of the Muddle," was shown. The picture was produced by General Motors Corporation to indicate the need of better roads.

Preparation for the National observance of Engineers' Week, February 17 to 23, were discussed. This week is set aside in recognition of engineering contribution to our civilization and commemorates the memory of one of our foremost American engineers in George Washington. A special committee was selected with Page Johnson, W. S. Burmeister, Prof. W. S. Cottingham and W. Youngquist all local area residents to coordinate the activities of Engineers' Week.

Indiana Elects Officers For 1952; Hinshaw Is Named President

The following engineers have been named officers of the Indiana SPE, for the coming year:

President, E. G. Hinshaw, Indianapolis; 1st Vice-President, J. B. Wilson, Indianapolis; 2nd Vice-President, John R. Swanton, Hammond; National Director, L. E. Easley, Indianapolis; Secretary, M. K. Fish, Indianapolis; Treasurer, M. L. Hayes, Greenfield; and Directors at Large, J. L. Quinn, Terre Haute, and Ben H. Petty, W. Lafayette.

Sam Busby of Indianapolis is Executive Secretary of the Indiana group.

Also of interest is the establishment of a new Central Indiana Chapter with headquarters in Indianapolis.

Roger Barron Wins Virginia Society Essay Contest

Mr. Roger Barron, Springfield, Virginia, a graduate of Fairfax High School and currently a student in the School of Engineering at Princeton University, has been awarded first prize for the best essay entered in the state essay contest sponsored by the Virginia Society of Professional Engineers on the subject of the profession of engineering.

The presentation of the award, a check for fifty dollars, was made by Mr. James A. Rives, Norfolk, Virginia, President of V.S.P.E., at the third annual banquet and meeting of the Northern Virginia Chapter of V.S.P.E. held recently at the George Mason Hotel, Alexandria, Virginia.

Mr. Barron is the son of Mr. and Mrs. Bryton Barron of Springfield, Virginia.

The principal address on the occasion was made by Brigadier General Bernard L. Robinson, U.S.A., Engineer Commissioner of Washington, D. C. General Robinson reviewed the history of the accomplishments of engineers in bridging the Potomac River and the resulting contributions to the development of the Nation's Capital. He stated that more bridges must span the Potomac in the Northern Virginia Area and revealed that studies were now in progress to determine which of the several suggested bridges should next be built.

Mr. Philip B. Hall, Director of Planning for the City of Alexandria, was elected President to succeed Mr. James J. Corbalis, Jr., Fairfax, Virginia. Other officers elected were Mr. L. B. Griffith, Arlington, First Vice President; Mr. Edward S. Holland, Alexandria, Second Vice President; Mr. Cecil Cross, Alexandria, Secretary-Treasurer; Mr. J. H. Poladian, Sr., Alexandria, Director; and Mr. Ward L. Rothgeb, Alexandria, and Mr. Corbalis, Directors to the State Society.

Ex NSPE Prexy A. G. Stanford Elected V. Pres. of NCSBEE

Alan G. Stanford, former president of the National Society of Professional Engineers, and an Atlanta Chapter member, has been elected Vice President of the National Council of States Boards of Engineering Examiners, at their recent meeting held in Boston, Mass.

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American Engineer

Va. School Host to Engineers

Above is Burruss Hall at VPI, Blacksburg, Va., scene of Engineering Conference.

VPI's Engineering Conference To Be Held During Engineers' Week

A panel of outstanding men from industry, labor, and the military field, including John D. Coleman, NSPE Presidential Nominee, will discuss the engineering shortage at the third annual Engineering Conference to be held in conjunction with Engineers' Week, 1952, at the Virginia Polytechnic Institute at Blacksburg, Va.

Professor H. L. Manning, Head, Department of Industrial Engineering, VPI, is in charge of the Conference which is sponsored by the school's Association for Advancement of Engineering, a group which draws its membership from the School of Engineering.

The panel, which will feature an extensive program, will include besides Mr. Coleman, William H. Ruffin, Immediate Past President, National Association of Manufacturers; Ewan Clague, Commissioner of Labor Statistics, U. S. Department of Labor; and Brig. Gen. J. S. Seybold, Director of Personnel, U. S. Army Engineers.

Other highlights of the Conference are a meeting of the Blacksburg Chapter of the Virginia SPE, and an address by Maynard M. Boring, Manager of the Technical Personnel Service Department of General Electric. Tours of each engineering department will be made at the convenience of guests.

Celebrate
National Engineers' Week
Feb. 17-23

G. B. Robbins Appointed NYSSPE's New Executive Secretary

President C. B. Molineaux of the New York SSPE, announces that the group's Executive Committee has appointed Mr. G. B. Robbins as the Society's new Executive Secretary.

Mr. Robbins is a graduate of the University of Michigan with a BS degree and was active in campus activities. He was president of his fraternity and a member of the football, hockey and baseball teams.

After graduation in 1936 he handled personnel duties for the L. G. Palmer Co. of Detroit, and later the National Broadcasting Co. in New York. He was a supervisor of the Middle Atlantic territory for the Equitable Life Assurance Society, supervising personnel, sales and service of group insurance.

During the war Mr. Robbins served as a full colonel in the Air Force. His responsibilities included acting as Chief of Military Personnel for the Mediterranean Allied Air Forces and the United States Forces European Theater.

Upon release from active duty he became Chief of Civilian Personnel for the Military Government of all of Germany and later as Executive Officer and Chief of the Executive Branch was a United States representative on the Allied Control Authority. His responsibilities included negotiating for, establishing and executing U. S. policy on a quadripartite basis in the secretariat on problems of demilitarization and disarmament of former German Armed Forces.

Returning to this country when the State Department took over in Europe Mr. Robbins was appointed District Group Manager for the Home Life Insurance Company, responsible for the Eastern Territory of U. S. as regards Group Insurance.

He is a native of New York State and grew up in Oneida County. His present home is in Buffalo.

Executive Addresses New York Chapter On "Human Engineering"

At a recent meeting of the New York Chapter, NYSSPE, Earl J. Wendt, President of Associated Industrial Services, spoke on the subject of "Human Engineering in Industry."

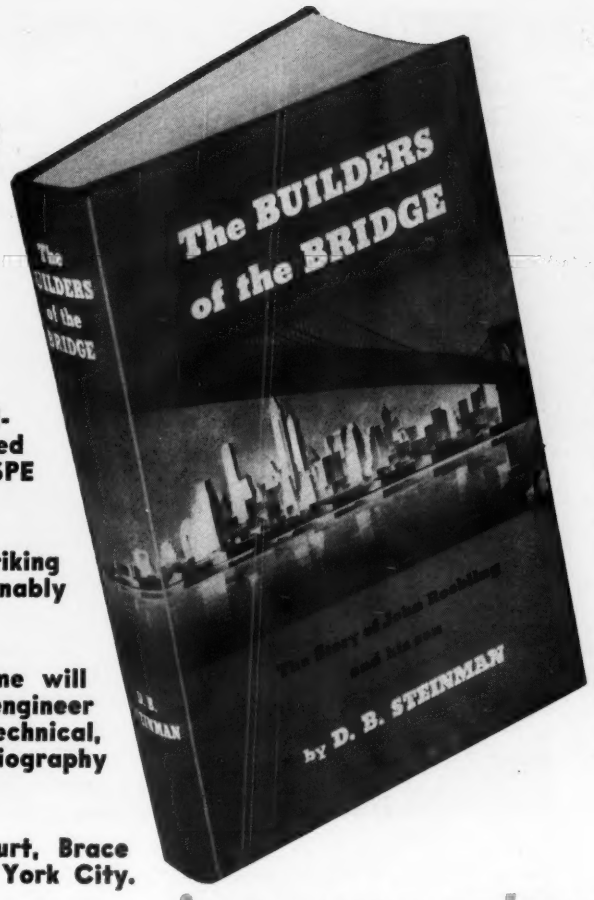
In the progress of industry, said Mr. Wendt, the building of machinery and equipment has outdistanced human interests. But, continued Mr. Wendt, human interests are now receiving more attention. In a comparatively short span of years the government has passed more labor laws than in previous centuries. The subject of Human Relations is a broad one, inclusive of both Public Relations and Industrial Relations and is probably the most important consideration today in the field of industrial management.

The setting of individual objectives is the first step towards success, declared Mr. Wendt. Some men have definite objectives and some men have no objectives. Many have undefined objectives and are not active in pursuing them. The objectives themselves may vary; to one it may mean security, to another it may mean continued advancement and growth towards a position of high responsibility.

Coming Soon . . .

An early issue of the *American Engineer* will carry the *complete* report "How To Improve Engineering-Management Communication." This 20,000 word study is the result of a canvas of America's industry, by NSPE's Engineers Conference Board for Industry. It is filled with facts and figures, and what subject could be of more interest to YOU? Don't miss it.

Now...



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What Others Have Said...

NORMAN BEL GEDDES: "Stimulating and engrossing reading . . . An excellent book."

SATURDAY REVIEW: "An entrancing and significant story . . . Should have a secure place among our biographical classics."

ENGINEERING NEWS-RECORD: "Tense, dramatic, fascinating . . . It should be as interesting to the engineer as to the layman, for it is filled with the lore of bridge building."

NEW YORK TIMES: "Of all men living, Dr. Steinman is probably the best qualified for the task of writing the biography of the Roeblings. He is a distinguished engineer and master bridge-builder himself . . . A valuable contribution to a neglected and important phase of American history."

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Here is a gripping account of two Americans of heroic stature, an exciting story of courage and vision for readers of all interests.

... about the author

Dr. Steinman, one of the foremost bridge engineers of our day, and first president of N.S.P.E., has devoted years to the study of the Roeblings and their time. This new, gift edition of his book, in an enlarged format, includes an epilogue relating how the author has been commissioned to redesign the Brooklyn Bridge for modern traffic.

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Atlanta Chapter Installs Officers

The Annual meeting of the Atlanta Chapter, G. S. P. E., was held recently in Atlanta, Georgia. The program included installation of officers for 1952 pictured above left. From l. to r., front row: C. T. Baker, Retiring President; Edward W. Klein, Jr., Vice President; Albert W. Rose, President; Sam L. North, Secretary; back row—Homer S. Weber, Director; H. H. White, State Director; William C. Cram, Jr., State Director; Eugene R. Bonds, Director; William R. Wofford, Director; James W. Austin, Jr., Director; not shown, Charles W. Lines, Treasurer.

The principal address was made by Rear Admiral Carl Henry Cotter, Civil Engineer Corps, U. S. Navy, Retired, shown standing at left in photo right, above. He was introduced by Cherry L. Emerson, Past National Vice President, N. S. P. E. and Vice President of Georgia Institute of Technology, shown standing at right. Seated, l. to r.: Atlanta Chapter President Albert W. Rose and Mrs. Rose and C. T. Baker, retiring chapter president, and Mrs. Clara Mooney.

Bottom photo: General Banquet scene. In lower right hand corner is Alan G. Stanford, Past President, N. S. P. E., and Mrs. Stanford.

Kansas' Tri-Valley Chapter Hears Bell Official

The Tri-Valley Chapter, Kansas Society of Professional Engineers, met at Clay Center recently for a regular meeting.

The program consisted of a talk by Harry Jungk, of Salina, District Engineer for the Bell Telephone Company and in charge of physical plant for the northwestern district of the state of Kansas.

Most of the talk concerned the problems of expanding the plant to anticipate future needs of the communities served, and the difficulties of predicting the trends of development. An example given was that of an insurance company planning a new building that is to include a branch exchange larger than that required by some towns. The exchange must be ready when the building is completed, but the insurance executives have not yet decided how many extensions will be required.

Tailor made service for special requirements of individual customers was described, including such recent developments as phones with volume control for deaf persons, and the microwave transmission lines.

Edwards, Centennial Head, Elected Prexy of Chicago Chapter

Frank W. Edwards, P. E., director of the department of civil engineering, Illinois Institute of Technology, and general manager for Centennial of Engineering, 1952, was elected president of the Chicago Chapter, Illinois Society of Professional Engineers at the annual meeting held recently.

Other officers elected were: John Dolio, partner, Shaw Metz and Dolio, architects and engineers, as vice-president, and K. C. Hoeglund, plant development engineer, Bauer & Black Company, as secretary-treasurer. Harold F. Sommerschield, structural engineer, Portland Cement Association was elected Chapter representative to the State Society last year for a two-year term.

Former Tenn. SPE President Made Knoxville Official

James E. McDonald, P. E., former President of the Tennessee SPE, has been appointed a member of the City Planning Commission for Knoxville.

McDonald, a newcomer to public office, was president of the Knoxville Chapter, TSPE, in 1949, and has practiced engineering in Knoxville for 7 years.

"Magazine Digest" Reprints AE Article . . .

The popular reprint publication, *Magazine Digest*, announces it intends to reprint the article "Model Ships Are Big Business Here" in its March issue. The feature originally ran in *The American Engineer* for October, 1951.

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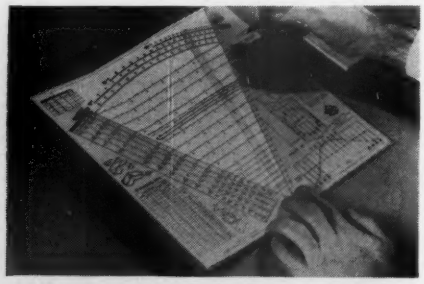
What's New

As a service to our readers, this column will describe briefly new product developments of general interest to professional engineers. For further information concerning these products, we will appreciate your filling in the coupon provided for this purpose, and mailing it to the American Engineer.

● Using only four readings from a Center Line, pipe layout is simplified and time saved with new, accurate computers havng pointers made of stable Vinylite plastic rigid sheet. Engineers, piping foremen, draftsmen, welders, sheet metal workers can make rapid layouts—right on the job —of pipe bends up to 126 degrees.

Dimensionally stable Vinylite plastic rigid sheet, used in making the long pointers, insures the same accurate readings under any weather conditions. Smooth and easy to slide over the computer, this pointer made of Vinylite plastic resists abrasion and is also easy to keep clean. The computer (top photo) gives direct readings for any angle of bend up to 126 degrees, in steps of one degree or less, on pipe diameters from one to



20 inches. Complete angles of two pieces of multi-piece bends, y-layouts, etc., are read on the computer and transferred quickly to the actual pipe, sheet metal, templet or drawing board. This instrument gives distances in inches along the pipe from a vertical center line. Only four measurement readings are required to mark a pipe (by quadrants) at 16 different ordinate points on the circumference.

The circle divider (bottom photo) gives instant reading of circumference divisions from ½ to 1/16 in fractions of an inch for any circle up to 72 inches in diameter. This divider is handy for getting ordinate spaces for templet layouts. Both instruments are available in folding type for field use and flat type for the shop. Both measure 12 inches square flat, 12 by 4½ inches folded and ready to fit pocket or tool box. ***Item one.***

● Kerlow Steel Flooring Co., of Jersey City, New Jersey, announces that its latest, up-to-the-minute, comprehensive folder on new IQ-35 Steel Bridge Flooring is just off the press and is available to bridge engineers and to others who wish information about this newest and most recent improvement in steel bridge flooring.

This latest development by Kerlow, whether laid longitudinally or transversely on a bridge, will carry H20 loading (highway load of 20 tons) on a 15″ circle (on an area this small to point up strength of flooring) up to a span of 48″ and weighs approximately 19 lbs., (weight per square foot of grating). A special red paint, with which the grating is finished, was developed for use on IQ-35 by one of the largest paint companies in the United States. ***Item two.***

● An informative new bulletin on low-cost, complete Spee-Dee whiteprinting outfits used in plants, offices, and schools has just been issued by Peck & Harvey, Chicago, manufacturers of whiteprint, blueprint, and photocopy equipment.

This colorful brochure illustrates and describes economical portable whiteprinting outfits that make it quick and easy for anyone to produce sharp, clear, easy-to-read black, blue, maroon or sepia line positive prints by the moist-diazo (semi-dry) or the ammonia-fume (dry) method. They are available in three sizes, accommodating prints up to 12″ x 18″, 18″ x 24″, and 24″ x 36″. ***Item three.***

● The new Wooldridge Model TC-S142 Terra Cobra Self-Propelled Scraper is described in an eight-page bulletin just released. Operational features and mechanical details are shown in a series of sectional, cutaway and assembly views. The bulletin is now available by writing this magazine. Request Bulletin Number TC-707.

The TC-S142 has a heaped capacity of 17.5 cubic yards, and is powered by a 225 hp Cummins Diesel Engine. The new bulletin describes many features pioneered and introduced by Wooldridge. ***Item four.***

● Publication of a new book, *Tenite Pipe Installations in Tennessee Eastman Company Plant*, has been announced by this company in Kingsport, Tennessee.

A concise report on several installations of noncorrodible cellulose acetate butyrate (Tenite II) clear pipe, the book includes information concerning the extrusion, quick fabrication and installing of the durable pipe. A summarizing chart and some thirteen photographs supply data on the specific pipelines in which Tenite is being successfully used to conduct liquids and dry material.

This book is available to industrial engineers, managers, and maintenance supervisors by writing this magazine. ***Item five.***

● Here is information on a new tube cap connector development that promises to be a boon to electronic equipment manufacturers.

Through a special new molding technique—by selecting material specifically for its high operational characteristics—and by molding the

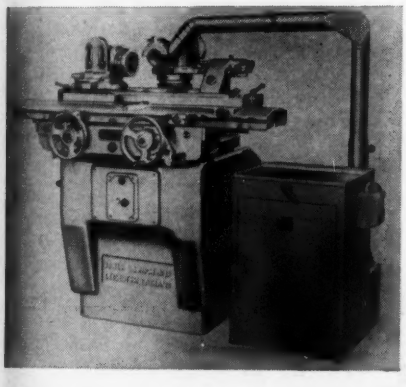
grid cap insulation and lead insulation into one homogeneous unit to form a positive seal around grid cap and lead, Aldens can supply tube cap connectors to meet practically any electrical, operational or climatic conditions. ***Item six.***

• The problem of industrial noises and their control is the subject of a new pamphlet just issued by the Industrial Acoustics Company.

The pamphlet illustrates the principles of noise measurement and how these noises are related to the human ear. Because noise is an objectionable sound, the elimination of these noises results in increased efficiency, improved employee morale and bettered public relations.

The types of industries that can profit from control of disturbing noises range from manufacturing and power plants to aviation factories and applies to such equipment as air conditioning systems; compressors; diesel engines; generators; jet engines; machinery, etc. ***Item seven.***

• British Industries Corp. New York 13, N. Y., the exclusive representative in the United States for Jones & Shipman of Leicester, England, is now offering for short term delivery Model 310 8″ x 16″ Cutter and Tool Grinding Machine, generally acknowledged the finest machine of its type manufactured in Europe.



The important features of the machine are:

1. Self-contained motor drive with built-in switchgear.
2. Universal operating positions with ease of accessibility to controls.
3. Anti-friction cross saddle mounting ensuring very sensitive control to cross feed movements.
4. Table traverses on precision roller chains, giving "finger-tip" control.
5. Robust machine bed, designed with particular attention to operator's convenience.
6. Table dogs reversible—one end spring loaded and the other a dead stop.
7. Table swivels a full 90 degrees in left-hand direction and 45 degrees right hand.
8. Large diameter wheel spindle, mounted in specially selected preloaded combined journal and thrust bearings.
9. Universal Cutter Head adjustable to swing from 8″ to 12″ diameters. Bored for both Morse and Brown & Sharpe Tapers.
10. Cutter Head and Tailstock provided with clearance angle setting adjustments.
11. Numerous attachments available to cover a wide range of tool and cutter grinding operations.
12. NEMA standard electrics and large dials in inch increments.
13. Table has triple controls and features extreme accuracy and finger tip sensitivity. ***Item eight.***

• Detailed information, including useful new production data, for figuring work schedules and costs on SOIL COMPACTION jobs is contained in a new bulletin just published by Barco Manufacturing Co., of Chicago covering the use of the Barco portable gasoline "Rammer" for tamping fill or back-fill in restricted areas.

Of special interest to builders, contractors, supervisory engineers, and project managers is a discussion of the use of "soil compaction" as a means of attaining (1) greater permanence, (2) lower costs, and (3) earlier completion dates on many construction projects.

Applications described in the new bulletin include use of *high degree* soil compaction in construction work on Highways, Roads, Streets, Buildings, Dams, Bridges, Airports, Landing Strips, Ordnance Proving Grounds, Pipe Lines, Utility

Trenches, Parks, and Cemeteries. Readers may secure copies by writing this magazine. ***Item nine.***

• Chrome Purifier, Portable Unit. Illinois Water Treatment Company, Rockford, Illinois announces a portable version of its Chrome Purifier for recovering and purifying chromic acid anodizing baths — and reclaiming plating and rinse waters.

The Chrome Purifier — newest of ILLCO-WAY developments in onX-change engineering—eliminates the necessity of discarding chromic acid which is normally replaced with fresh acid to maintain a required pH and acid concentration. ***Item ten.***

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Letters

(*Continued from page* 5)

our beloved country from complete bankruptcy.

"Considering the reduction in the productive effort within the various crafts, plus the tremendous raise in pay of their membership, it should be obvious that the mechanical, chemical, civil and other special engineering branches met this situation head-on and mechanized the plants of America so that they could still produce completed items at remarkably low cost. Is it not true that the wheels of industry and the power that drives them have been almost exclusively in the hands of the engineers?

"I doubt that the general public realizes the amazing results the profession has accomplished. They have not been stopped but I some times wonder how long they can meet the economical problems which now confront our country. The road seems long and arduous.

"I realize that I am only a single voice, but so far as credit for achievement is concerned, I feel the profession must make the country understand the value of the engineer to American industry, which, in fact, is the heart of the nation."

IRVING J. LAKE, P.E.,
Secretary, Kings County Chapter,
NYSSPE, Brooklyn, N. Y.

Washington

(*Continued from page* 18)

connected by a palisaded fence and covered half an acre. Vestiges of this fortification still remain.

Great care was exercised in those days to assure the garrison a continuous supply of water. It is no surprise then to find that a 103 feet well had been drilled through solid limestone, still useful today.

Washington kept Gov. Dinwiddie abreast of the progress being made as well as the factors which interfered with their progress. From Winchester he wrote, "At this place I have begun the fort according to your orders and have found that the work could not be conducted if I were away which was one of the many reasons that detained me." In another letter he said, "Gave the officer a list of tools as were wanted to build the chain of forts and ordered them sent by wagon pressed for that purpose . . . and shall visit all the grounds that I can and direct the building."

There was considerable disagreement between Washington and Dinwiddie as to the location and number of the defenses. Washington held that it was better to have a few strong forts than to spread the available small number of militiamen into groups so small it encouraged attack from the enemy. He thought that Fort Cumberland at the mouth of Wills Creek was incapable of being defended. Dinwiddie on the other hand held that this was a King's Fort and should be defended. He ordered a council of war, to which Washington purposely absented himself. In spite of the fact that the council voted in favor of retention of this fort, Washington still persisted in its omission.

It is interesting to note that though he had urgent need for tools and materials which held up the completion of the forts, Washington gave orders "to make room on the wagon for a bedstead which was formerly the property of Gen. Braddock," whom he revered.

An important part of Washington's engineering services during this period was the opening of roads for military use. In 1754 he widened Nemacolin's path on his trip to Fort Necessity. In 1755 Braddock ordered the road widened and improved to permit the passage of military wagons. In 1758, as Col. Washington in charge of the 1st Virginia Regiment under Forbes, he was ordered to open up a new road from Raystown on the way to Fort Duquesne. Washington argued against the necessity of such a road since the one through Fort Cumberland which he had built previously under Braddock was available. Forbes was adamant in his stand and the new road from Raystown was opened up.

The progress towards Fort Duquesne was slow, so much so Forbes gave up the idea of attacking the French stronghold in 1758. When word was received that a great many of the Indians with the French who had been waiting for the attack to take place became restless and deserted, Forbes ordered Washington's regiment to march post haste to the Forks, which they did. To their surprise they found the fort a burned ruins, marched in and raised the British flag, named it Fort Pitt in honor of Lord Pitt then Prime Minister of Britain, and Washington became the "Hero of the Monongahela."

Thus Washington, charged with the erection of Dinwiddie's Chain of Forts, together with his surveying and military road building, was a frontier engineer long before engineering as we know it was taught in Europe much less America.

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EDITORIALS

An Outstanding Selection . . .

President Truman has nominated Eric Johnston to be chairman of the International Advisory Board, the presidential advisory group for the Point Four program. Mr. Johnston, who only recently returned to his post as president of the Motion Picture Association of America after serving the Nation as economic stabilizer, will succeed Nelson Rockefeller, who recently resigned.

The AMERICAN ENGINEER looks upon the President's selection as an admirable one. Although Mr. Johnston has served the country "far beyond the call of duty" during the past decade, it is encouraging to know that this man's unique talents can once again be brought into service against problems of grave concern to the United States and, in this case, the entire world.

The advisory board is composed of representatives of business, labor, agriculture, public health and education. In accepting the new post, Mr. Johnston expressed the conviction that the "Point Four program is the greatest contribution we make" to narrow the gap between well-being and want in impoverished areas of the world.

Inasmuch as this "narrowing" will be done largely by engineers and engineering, the profession should take a keen interest in the program and the leaders thereof. As we have said, Mr. Johnston is well fitted for his job. In closing, it might be well to hope that Mr. Truman's selection of a director of the program, to succeed the late Dr. Henry G. Bennett, will be as excellent. The Chief Executive could well study the records of the hundreds of great leaders in the engineering profession before making his final choice. An engineer for an engineering job makes good sense.

A Game?

Most people except newspaper people refer to the journalism field as a "game." Not the journalist, though—to him it is a pretty serious business. Politics, too, has been tagged a "great game." This sort of thing may make for colorful writing and speaking, but the unfortunate thing about it is that it is believed, and too many of us fail to take elections and politicians seriously. The result: *Fewer Americans vote than do the citizens of any other major country!*

Politics may be interesting, but it is not a game. It is the spawning ground for our leaders — men who will shape the future for us and our children. That's serious business, and must be placed in the hands of only the best.

This is an election year. The primaries will soon be held in many states. Take part in these elections they are as important as the finals, for it is in the primaries that the "weeding out" is done.

This Issue . . .

This is our National Engineers' Week issue. So many words have been written about this observance not only in this magazine but in publications throughout the country, that we will not dwell on the subject here. We would like to say this however: Take part in Engineers' Week in some capacity—if only as an interested observer.

A great deal of work at the National, State and Chapter levels has been expended on this celebration. We think the program is the biggest and best yet. Why not join in YOUR Week?

Antiquated Highways . . .

The B. F. Goodrich Company, through its vice president, James J. Newman, recently called for the appointment of a qualified committee to formulate a 10-year master plan for the rehabilitation and expansion of the Nation's antiquated highway system.

Mr. Newman urged that Congress assist in setting up a top level committee which would not only aid in the planning of highways but which also would investigate and report on the availability and amount of such materials as steel and concrete that would be needed.

He said "everybody is talking about how deficient our roads are and the tremendous highway expansion that is required. But there still remains the task of finding out how this would be accomplished and there are many facts and figures lacking."

The Goodrich spokesman called for the coordination of all interested groups and asked that a qualified committee composed of engineers, economists, automotive industry personnel, and Governmental people at all levels, be named.

The much discussed highway problem is, of course, very serious and one that concerns the engineering profession most intimately. Whether or not a committee as suggested by Mr. Newman of Goodrich, would be a final and complete answer is doubtful, but it does seem evident that some overall body with enough power to get things done, is needed.

If appointed, such a committee should draw heavily from the engineering profession for its membership.